UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/848,642 | 05/03/2001 | Shunpei Yamazaki | SEL 258 | 7227 |

7590 04/20/2004

COOK, ALEX, MCFARRON, MANZO,
CUMMINGS & MEHLER, LTD.
Suite 2850
200 West Adams St.
Chicago, IL 60606

| EXAMINER |
|---|
| SCHECHTER, ANDREW M |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2871 | |

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/848,642 | YAMAZAKI ET AL. | |
| | Examiner | Art Unit | |
| | Andrew Schechter | 2871 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *05 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,2,6-9,11-14,16 and 18-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,6-9,11-14,16 and 18-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Drawings*

1. The correction to the drawings (including a corrected version of Fig. 16) were received on 5 March 2004. These drawings are approved.

### *Specification*

2. The disclosure is objected to because of the following informalities: the amendment to the specification on 5 March 2004 replaced "video" with "vertical" on p. 39. The appropriate word is "versatile" as in claims 7, 12, etc. Appropriate correction is required.

### *Response to Arguments*

3. Applicant's arguments filed 5 March 2004 have been fully considered but they are not persuasive.

The applicants have amended claims 1, 8, and 13 to recite the transitional phrase "consisting essentially of" rather than "comprising" [see MPEP 2111.03]. They argue [p. 14-15] that *Yokomizu* fails to disclose the claimed feature "a light shielding portion consisting essentially of a first colored layer and a second colored layer". There is a clear indication in the specification [see p. 8, for instance] that the basic and novel characteristic of the invention is a light shield made of two colored layers, as opposed to being made of three colored layers or incorporating a separate black matrix layer.

Either a third colored layer or a separate black matrix layer would materially affect the basic and novel characteristics of the invention, and is excluded by the use of the transitional phrase "consisting essentially of". The examiner therefore accepts the argument of the applicants that the claim language using the transitional phrase "consisting essentially of" distinguishes the claimed invention from that of *Yokomizu*.

Independent claims 21, 25, and 29 recite that "said light shielding portion does not include a third colored layer" which distinguishes them from *Yokomizu*. However, added claim 35 does not exclude such a third colored layer and is rejected below in view of *Yokomizu*.

***Claim Objections***

4. Claim 13 is objected to because of the following informalities: "a plurality of pixel electrodes" in line 3 was amended to "a electrode". It should be "a pixel electrode" in order to provide the proper antecedent for "said pixel electrode" in line 9. Appropriate correction is required.

5. Claim 25 is objected to because of the following informalities: the last two lines are inadvertently repeated (bottom of p. 8 and top of p. 9). Appropriate correction is required.

6. Claims 6, 11, 18, 23, 27, 32, and 38 are objected to because of the following informalities: the phrase "transmission type liquid crystal display device" should be "transmission liquid crystal display device" since the use of "type" renders the term indefinite [see MPEP 2173.05(b)]. Appropriate correction is required.

7. Claims 40 is objected to because of the following informalities: claim 40 recites "the substrate" without proper antecedent. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 21-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claims 21, 25, and 29 each recite "said light shielding portion does not include a third colored layer". This is unclear. It could require that the claimed device must have a third colored layer which, however, is not part of the light shielding portion; or it could simply be satisfied by the device having no third colored layer at all. Each has a dependent claim (22, 26, and 30, respectively) reciting that "the third colored layer is green", which makes more sense if the device is actually required to have the third colored layer. For examining purposes, it will therefore be assumed that "a third colored layer" is positively recited by claims 21, 25, and 29.

Claims 22-24, 26-28, and 30-34 depend on the above claims.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 35-38 are rejected under 35 U.S.C. 102(b) as being anticipated by *Yokomizu,* Japanese Patent Document No. 10-073813. (A machine-translation of the reference was provided to the applicant in a previous office action.)

*Yokomizu* discloses [see Figs. 1 and 2, and consider the 4th black matrix from either left or right in Fig. 1] an electro-optical device comprising a first colored layer [21B], a second colored layer [21R], and a third colored layer [21G], wherein a light shielding portion [21BM] comprises said first colored layer and said second colored layer. Claim 35 is therefore anticipated.

The first colored layer is blue, the second is red, and the third is green, so claim 36 is also anticipated. The light shielding portion is provided under an opposing substrate [20], so claim 37 is also anticipated. The device is a transmission type liquid crystal display device [paragraph 0017] in which a pixel electrode [13] is made of a transparent conductive film [paragraph 0018], so claim 38 is also anticipated.

12. Claims 35-38, 40, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by *Okubo et al.,* U.S. Patent No. 4,470,667.

*Okubo* discloses [see Figs. 3, 4, 11, and 12, for instance] an electro-optical device comprising a first colored layer [110], a second colored layer [112], and a third

colored layer [111], wherein a light shielding portion comprises said first colored layer and said second colored layer [see Fig. 11]. Claim 35 is therefore anticipated.

The first layer is blue, the second red, the third green, so claim 36 is also anticipated. The light shielding portion is provided under an opposing substrate, so claim 37 is also anticipated. When used in a transmission LCD [col. 6, line 31] the pixel electrode [4, etc.] is made of a transparent conductive film [col. 7, lines 11-13], so claim 38 is also anticipated. A pixel electrode [4, etc.] is connected to a thin film transistor and said light shielding portion [taken to be the portion over the TFT] is formed overlapping a channel forming region of the thin film transistor [see Figs. 11 and 12], so claim 40 is also anticipated. The light shielding portion [taken to be the portion along the horizontal bus line between two TFTs, where only two colored layers overlap] does not include said third colored layer [see Fig. 11], so claim 42 is also anticipated.

13. Claims 1, 2, 7-9, 12, 21, 22, 24-26, 28, 35-37, 39-42 are rejected under 35 U.S.C. 102(e) as being anticipated by *Fujioka et al.,* U.S. Patent No. 6,552,764.

*Fujioka* discloses [see Fig. 16] an electro-optical device comprising a light shielding portion [above the TFT on the right] consisting essentially of a first colored layer [106C] and a second colored layer [106A], wherein the light shielding portion is formed overlapping a channel forming region [206] of a switching element [201] provided over a substrate [101A], wherein the light shielding portion is provided under an opposing substrate [102A] and wherein a liquid crystal [111] is between said light shielding portion and said channel forming region. Claim 1 is therefore anticipated.

There is a thin film transistor [201] formed over the substrate [101A], whose channel forming region is overlapped by the light shielding portion, so claim 8 is also anticipated.

The light shielding portion does not include a third colored layer [106B], so claims 21 and 25 are also anticipated.

The first colored layer is blue, the second red, the third green, so claims 2, 9, 22, and 26 are also anticipated. The device can be a personal computer including the LCD [col. 1, line 10], so claims 7, 12, 24, and 28 are also anticipated.

As discussed above, there are first, second, and third colored layers, with a light shielding portion comprising the first and second, so claim 35 is anticipated. The first is blue, the second red, the third green, so claim 36 is anticipated. The light shielding portion is provided under an opposing substrate, so claim 37 is anticipated. The device can be a personal computer including the LCD, so claim 39 is anticipated. There is a pixel electrode [202] connected to a TFT formed over the substrate, and said light shielding portion is formed overlapping a channel forming region of the TFT, so claim 40 is anticipated. The liquid crystal is between the light shielding portion and the channel forming region, so claim 41 is anticipated. The light shielding portion does not include the third colored layer, so claim 42 is anticipated.

14. Claims 35-38 and 42 are rejected under 35 U.S.C. 102(e) as being anticipated by *Ikeda et al.,* U.S. Patent No. 6,671,025.

In discussing the Eleventh Embodiment [col. 28, line 56ff], *Ikeda* discloses that any of the "configurations shown in the first to seventh embodiments may be applied as

a configuration of the TFT substrate" matched to the color filter [CF] substrate disclosed in the eleventh embodiment [which is shown in Fig. 40A]. *Ikeda* therefore gives explicit fruition to using the color filter substrate shown in Fig. 40A with the TFT substrate shown in Figs. 3-4 (first embodiment), for instance.

*Ikeda* discloses [see Figs. 40A, and Figs. 3-4 where the color filter substrate 40 has been replaced with the color filter substrate of Fig. 40A] an electro-optical device comprising a first colored layer [173B], a second colored layer [173R], and a third colored layer [173G]; wherein a light shielding portion [172] comprises said first colored layer and said second colored layer. Claim 35 is therefore anticipated.

The first layer is blue, the second red, the third green, so claim 36 is also anticipated. The light shielding portion is provided under an opposing substrate [171], so claim 37 is also anticipated. The electro-optical device is a transmission type LCD [col. 6, line 39 – col. 7, line 43 – both pixel and opposing electrode are transparent, both substrates are glass, and there are polarizers on both substrates, hence this is a transmission LCD as opposed to a reflection LCD] in which a pixel electrode [32] is made of a transparent conductive film [ITO, col. 7, line 7], so claim 38 is also anticipated. The light shielding portion does not include said third colored layer, so claim 42 is also anticipated.

### *Claim Rejections - 35 USC § 103*

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. Claims 1, 2, 6, 8, 9, 11, 13, 14, 16, 18, 20-23, 25-27, 29-32, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ikeda et al.,* U.S. Patent No. 6,671,025 in view of *Fujikawa*, U.S. Patent No. 6,002,463.

In discussing the Eleventh Embodiment [col. 28, line 56ff], *Ikeda* discloses that any of the "configurations shown in the first to seventh embodiments may be applied as a configuration of the TFT substrate" matched to the color filter [CF] substrate disclosed in the eleventh embodiment [which is shown in Fig. 40A]. *Ikeda* therefore gives explicit fruition to using the color filter substrate shown in Fig. 40A with the TFT substrate shown in Figs. 3-4 (first embodiment), for instance.

*Ikeda* discloses [see Figs. 40A, and Figs. 3-4 where the color filter substrate 40 has been replaced with the color filter substrate of Fig. 40A] an electro-optical device comprising a pixel electrode [32] provided over a substrate and a thin film transistor [37] formed over a substrate [31]; a light shielding portion [172] consisting essentially of a first colored layer [173B] and a second colored layer [173R]; wherein the light shielding portion is provided under an opposing substrate [171]; and wherein a liquid crystal layer is between said light shielding portion and the regions on the other substrate.

*Ikeda* discloses that the black matrix in Figs. 3-4 (the equivalent of the light shielding portion in Fig. 40A] is disposed over the drain and gate bus lines, the auxiliary capacitance electrodes, and the TFTs on the TFT substrate [col. 7, lines 30-33], which suggests that the light shielding portion shown in Fig. 40A would be similarly disposed.

However, *Ikeda* does not explicitly disclose where (in plane view) the light shielding portion is disposed when combining the CF of Fig. 40A with the TFT substrate of Fig. 3.

*Fujikawa* discloses forming the light shielding portion [black matrix] overlapping with the channel forming region of the switching element (thin film transistor) and covering the regions between adjacent pixel electrodes [see Fig. 4]. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so with the light shielding portion shown in Fig. 40A placed on the TFT substrate shown in Fig. 3, motivated by *Fujikawa*'s teaching that the function of a black matrix is to prevent "a decrease in display contrast due to back light transmission between a transparent pixel electrode of indium tin oxide (ITO) and its circumferential wiring and the like [that is, between adjacent pixel electrodes], and a decrease in display quality due to leakage current excited by incident light at the channel region of a thin film transistor" [col. 1, lines 24-29].

In the device of *Ikeda* in view of *Fujikawa*, the liquid crystal [49] is positioned between the light shielding portion on the color filter substrate and the channel forming region as recited in claims 1 and 8, and between the light shielding portion and said regions (between adjacent pixel electrodes) as recited in claim 13. Claims 1, 8, and 13 are therefore unpatentable.

A switching element [the TFT 37] is connected [col. 7, lines 9-11] to said pixel electrode [32], so claims 16, 20, 31, and 34 are also unpatentable.

The said light shielding portion does not include a third colored layer [173G], so claims 21, 25, and 29 are also unpatentable.

The first colored layer is blue [173B], the second red [173R], so claims 2, 9, and 14 are unpatentable.

The third colored layer is green [173G], so claims 22, 26, and 30 are also unpatentable.

The electro-optical device is a transmission type LCD [col. 6, line 39 – col. 7, line 43 – both pixel and opposing electrode are transparent, both substrates are glass, and there are polarizers on both substrates, hence this is a transmission LCD as opposed to a reflection LCD] in which a pixel electrode [32] is made of a transparent conductive film [ITO, col. 7, line 7], so claims 6, 11, 18, 23, 27, and 32 are also unpatentable.

17. Claims 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ikeda et al.,* U.S. Patent No. 6,671,025 as applied to claim 35 above, in view of *Fujikawa*, U.S. Patent No. 6,002,463.

*Ikeda* also discloses that a pixel electrode [32] is connected [col. 7, lines 9-11] to a thin film transistor [37] over the substrate [31] as recited in claim 40.

*Ikeda* discloses that the black matrix in Figs. 3-4 (the equivalent of the light shielding portion in Fig. 40A] is disposed over the drain and gate bus lines, the auxiliary capacitance electrodes, and the TFTs on the TFT substrate [col. 7, lines 30-33], which suggests that the light shielding portion shown in Fig. 40A would be similarly disposed. However, *Ikeda* does not explicitly disclose where (in plane view) the light shielding portion is disposed when combining the CF of Fig. 40A with the TFT substrate of Fig. 3.

*Fujikawa* discloses forming the light shielding portion [black matrix] overlapping with the channel forming region of the switching element (thin film transistor) and

covering the regions between adjacent pixel electrodes [see Fig. 4]. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so with the light shielding portion shown in Fig. 40A placed on the TFT substrate shown in Fig. 3, motivated by *Fujikawa*'s teaching that the function of a black matrix is to prevent "a decrease in display contrast due to back light transmission between a transparent pixel electrode of indium tin oxide (ITO) and its circumferential wiring and the like [that is, between adjacent pixel electrodes], and a decrease in display quality due to leakage current excited by incident light at the channel region of a thin film transistor" [col. 1, lines 24-29]. Claim 40 is therefore unpatentable.

In the device of *Ikeda* in view of *Fujikawa*, the liquid crystal [49] is positioned between the light shielding portion on the color filter substrate and the channel forming region on the TFT substrate, so claim 41 is also unpatentable.

18. Claims 7, 12, 19, 24, 28, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ikeda et al.,* U.S. Patent No. 6,671,025 in view of *Fujikawa*, U.S. Patent No. 6,002,463 as applied to claims 1, 8, 13, 21, 25, and 29 above, and further in view of *Ogawa et al.,* U.S. Patent No. 5,373,377.

*Ikeda* and *Fujikawa* do not disclose that the electro-optical device is a personal computer, for instance. *Ogawa* does disclose an analogous liquid crystal display electro-optical device which is a personal computer. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the LCD of *Ikeda* in view of *Fujikawa* into a personal computer (making the personal computer the electro-optical device), motivated by *Ogawa*'s teaching that "liquid crystal displays ... weigh

light, permit a decrease in thickness, and consume only a small amount of electric power, and owing to these benefits, have found utility in such applications as ... lap-top personal computers" [col. 1, lines 12-17]. Claims 7, 12, 19, 24, 28, and 33 are therefore unpatentable.

19. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Ikeda et al.,* U.S. Patent No. 6,671,025 as applied to claim 35 above, in view of *Ogawa et al.,* U.S. Patent No. 5,373,377.

*Ikeda* does not disclose that the electro-optical device is a personal computer, for instance. *Ogawa* does disclose an analogous liquid crystal display electro-optical device which is a personal computer. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the LCD of *Ikeda* into a personal computer (making the personal computer the electro-optical device), motivated by *Ogawa*'s teaching that "liquid crystal displays ... weigh light, permit a decrease in thickness, and consume only a small amount of electric power, and owing to these benefits, have found utility in such applications as ... lap-top personal computers" [col. 1, lines 12-17]. Claim 39 is therefore unpatentable.

## ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andrew Schechter
Patent Examiner
Technology Center 2800
13 April 2004